Wood as a raw material of many musical instruments plays an essential role in their acoustic, aesthetic or technical quality, therefore in their identity. Among the many wood used in musical instruments, the term “resonance wood” is often used to describe those used for the soundboard of string instruments, and sometimes for their resonator box.

The “resonance woods” for the making of violin family have benefited (spruce for top plates and lesser so “fiddleback” maple for back plates) from more research than other instrument making woods, but the interactions between different disciplines and viewpoints in this field has seldom been addressed.

The objective of this study is to improve the understanding of the interactions between physical-mechanical properties of resonance wood, their natural variability, and the actual expertise of violin makers in the selection and qualification of their raw material.

2. Development of a survey

To identify violin makers’ opinions and practices by both qualitative and quantitative questions

- **Face to face interview**
  - First step: Luthiers of Montpellier : 11 makers contacted, 9 positive responses
  - 6 complete responses to the 14 pages questionnaire

- **Second step** : extension to 3 Iranian makers of traditional string instruments

- **Organized by modules** (*Maker’s Profile, Concept of quality, Wood supply, Wood Criteria Choices for top plates, for “back & sides, for “bows, Treatments and varnish, Relation to scientific and historical research, *Questions and remarks)

4. Wood choice by violin makers

All makers buy their wood from a specialized supplier, whom they trust and never choose directly in the forest. To choose their tonewoods, they mainly assess density and visual criteria

Violin makers trust their suppliers but pay little attention to grades posted...

Necessity to integrate the suppliers in the survey

5. Wood in instrument « quality »

To clarify this concept of quality, the makers defined a good instrument by using :

- **Physical criteria**, “powerful”, “with timbre” and “easy to play” - a notion of pleasure “sensation of evidence”, “instrument unanimously appreciated”, “that pleases the one who plays”

Resonance wood choice appears for craftsmen to be a determining factor in sound quality of the instrument.

6. Relation to research and sciences

Violin makers rely mainly on empirical approaches, and also historical for their practices, but report a lot of interest in the scientific approach of resonance wood.

Their interests are mostly related to the history of art and techniques, to the drawing, varnishes and to the mechanics and wood science.

2/3 luthiers are interested in the development of simple tools usable in a workshop if they permit a better knowledge of the wood.

7. What about some « clichés » ?

- **Makers opinion**
  - *Today’s luthiers are at least as competent as those of past centuries*.
  - *Quality of resonance wood was “better” in the 18th century*
  - *Ancient luthiers had more access to “good” resonance wood than current luthiers.*
  - *Manufacturing a good bow with medium quality wood is possible*
  - *Manufacturing a good violin with medium quality wood is possible*
  - *Musicians, luthiers and public can differentiate instruments of ancient masters from those of best modern craftsmen just by listening.*
  - “Old masters” had a “secret”.

The opinion of violin makers is clearly more pragmatic than the « clichés » vehiculated by general public and media on their profession!!

8. Conclusion and perspectives

Empirical choice by violin makers are based on perceptual criteria that can be visual, tactile, physic-mechanical and auditory. Makers report a lot of interest on several field of research including those on resonance wood. They considered the wood to be one of the most determining factors in sound quality of the instrument.

- **Perspectives**
  - To broaden our survey to a national and international scale
  - A more detailed study to assess the respective contribution of different fields of perception is needed

Acknowledgments

The authors gratefully thank the violin makers of Montpellier for their time, help they granted us and their participation in the survey.

The support of INSIS-CNRS (PhD Grant) is gratefully acknowledged. The PHG Gundisahpur and the help of Aida Se Golpayegani and Iranian makers is much appreciated.